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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,621	02/20/2004	Anoop Mukker	42P18614	7209
8791	7590	05/17/2006	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030			MCFADDEN, MICHAEL B	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/783,621

Applicant(s)

MUKKER ET AL.

Examiner

Michael B. McFadden

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

1. The instant application having Application No. 10/783,621 has a total of 34 claims pending in the application; there are 6 independent claims and 28 dependent claims, all of which are ready for examination by the examiner.

### **I. INFORMATION CONCERNING OATH/DECLARATION**

#### **Oath/Declaration**

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. ' 1.63.

### **III. INFORMATION CONCERNING DRAWINGS**

#### **Drawings**

3. The applicant's drawings submitted 20 February 2004 are acceptable for examination purposes.

### **VII. REJECTIONS BASED ON PRIOR ART**

#### **Claim Rejections - 35 USC ' 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Cai et al. (US Patent No. 6,349,363 (herein after Cai)).
6. **Regarding Claims 1, 7, 13, 19, and 25**, Cai discloses partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries (**Cai: Column 2, Lines 57-60**), wherein special-purpose entries are only allocated for one or more streams having a particular stream ID (**Cai: Column 3, Lines 43-49 and Column 4, Lines 25-42**).
7. **Regarding Claims 2, 8, 14, 20, and 30**, Cai discloses allocating the one or more special purpose entries based on the particular stream ID and a particular input address. (**Cai: Column 3, Lines 43-49 and Column 4, Lines 25-42 and Figure 3, Element 162**). The EID coupled with input address locate where the entries, in the cache, will be placed. A cache input address is inherent in accessing stored data because that is how data is located in a cache.
8. **Regarding Claims 3, 9, 15, and 21**, Cai discloses storing data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address; and storing data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input address. (**Cai: Column 3, Lines 43-49 and Column 4, Lines 25-42 and Figure 3, Element 162**). The EID coupled with input address locate where the entries, in the cache, will be placed. A cache input address is inherent in accessing stored data because that

**is how data is located in a cache. The general-purpose entries would be stored in the default cache with the “default EID identifier”.**

**9. Regarding Claims 4, 10, 16, 22, 28, 29, 31, and 32, Cai discloses determining when the particular stream ID and the particular input address match the predetermined stream ID and the predetermined input address using special-purpose control logic; and using a cache replacement algorithm implemented using general-purpose control logic for the one or more general-purpose entries. (Cai: Column 3, Lines 1-13 and Column 4, Lines 9-25 and Column 5, Line 62 – Column 6, Line 7). The memory controller manages multiple cache partitions and is able to differentiate multiple EIDs. Being able to differentiate between more than two EIDs shows that special logic is used to determine the cache location from the address and EID.**

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10. **Regarding Claims 5, 17, and 23**, Cai discloses determining if a cross-access scenario exists. **(Cai: Column 6, Lines 17-19) Snooping allows the caches to know if they contain the same information as another cache in the same system.**

11. **Regarding Claims 6, 12, 18, 24, 26, 34**, Cai discloses wherein the special-purpose stream includes a data stream and wherein the system contains an I/O hub interface connected to a bus, a processor interface; and a host AGP controller connected to the system memory controller via the bus; wherein the cache array receives the cache operation requesting data via the one or more interfaces, and returns a cache hit in response to the cache operation, wherein the cache has a pending fetch for the data in response to a prior cache operation requesting the data. **(Cai: Column 6, Line 60 – Column 7, Line 5)**

12. **Regarding Claim 11 and 33**, Cai discloses a DRAM controller integrated with the cache memory array. **(Cai: Column 5, Lines 12-16) A DRAM is controlled by a DRAM controller.**

13. **Regarding Claim 27**, Cai discloses wherein the processor interface connects a plurality of processors **(Figure 2 and Column 6, Line 44 – Column 7, Line 14)**, the plurality of processors including a 16-bit processor and a 64-bit processor. **From Figure 2 it can be seen that the caches are connected to a memory hub. Also connected to the hub are many devices. The text also discloses the caches connected to the multiple devices and controllers. The various devices and controllers inherently have their own processors. Therefore disclosing a plurality of processors. The**

**size of the processors is a design choice and therefore does not carry patentable weight.**

#### **VIII. RELEVANT ART CITED BY THE EXAMINER**

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The following references teach a selective partitioned cache:

Arimilli et al. US Patent No. 6,421,761

Adams US Patent No. 6,356,996

#### **IX. CLOSING COMMENTS**

##### **Conclusion**

##### **a. STATUS OF CLAIMS IN THE APPLICATION**

15. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. '707.07(i):

##### **a(4). CLAIMS REJECTED IN THE APPLICATION**

16. Per the instant office action, claims 1-34 have received a first action on the merits and are subject of a first action non-final.

##### **b. DIRECTION OF FUTURE CORRESPONDENCES**

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. McFadden whose telephone number is (571)272-8013. The examiner can normally be reached on Monday-Friday 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manorama Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

#### IMPORTANT NOTE

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBM  
05/08/2006

  
MANO PADMANABHAN  
SUPERVISORY PATENT EXAMINER